

# 4.4

## Matching Equations and Graphs

### LESSON 7

### Recap

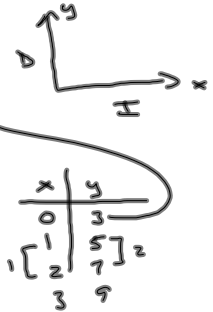
$$y = 2x + 3$$

↳ constant

Change.

$\frac{2}{1} \rightarrow$  Dependent  $\rightarrow$

$\rightarrow$  Independent  $\leftarrow$

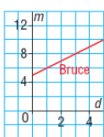
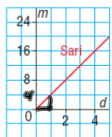


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### Connect

Each student has a different plan to raise money from her or his sponsors. These graphs show how the amount of sponsor owes is related to the distance walked.



Match each graph with its equation:

$$m = d + 5$$

$$m = 4d$$

$$m = 2d + 3$$

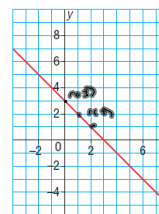
$$\frac{x}{0} \frac{y}{3}$$

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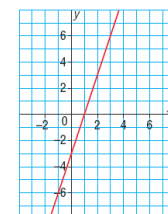
### Connect

The 3 graphs below have these equations, but the graphs are not in order:  $y = 3x + 3$   $x + y = 3$   $y = 3x - 3$

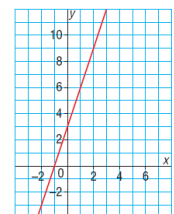
Graph A



Graph B



Graph C



To match each equation with its graph, use the equation to determine the coordinates of 3 points. Then find which graph passes through those 3 points.

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**Connect**

For  $y = 3x + 3$

Substitute in 0.      Substitute in 1.      Substitute in 2.

$y = 3x + 3$   
 $y = 3(0) + 3$   
 $y = 3$

$y = 3x + 3$   
 $y = 3(1) + 3$   
 $y = 3 + 3$   
 $y = 6$

$y = 3x + 3$   
 $y = 3(2) + 3$   
 $y = 6 + 3$   
 $y = 9$

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**Connect**

For  $x + y = 3$

Substit in 0.      in 1.      Substitute in 2.

$x + y = 3$   
 $(0) + y = 3$   
 $y = 3$

$x + y = 3$   
 $(1) + y = 3$   
 $y = 3 - 1$   
 $y = 2$

$x + y = 3$   
 $(2) + y = 3$   
 $y = 3 - 2$   
 $y = 1$

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**Connect**

For  $y = 3x - 3$

Substitute in 0.      Substitute in 1.      Substitute in 2.

$y = 3x - 3$   
 $y = 3(0) - 3$   
 $y = -3$

$y = 3x - 3$   
 $y = 3(1) - 3$   
 $y = 3 - 3$   
 $y = 0$

$y = 3x - 3$   
 $y = 3(2) - 3$   
 $y = 6 - 3$   
 $y = 3$

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**Practice**      **EXAMPLE 1:**

Match each graph on the grid with its equation below.

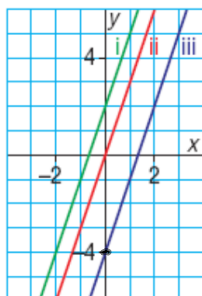
$y = x + \frac{3}{1} \text{ Graph C}$   
 $y = 2x + \frac{3}{1} \text{ Graph A}$   
 $y = -3x \text{ Graph B}$

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Practice

EXAMPLE 2:

Which graph on this grid has the equation  $y = 3x - 4$ ?



✓  
 $\frac{3}{1}$      $-4$   
 Blue.

Discuss  
 the ideas

- 1) When we match an equation to a graph by determining coordinates of points on the graph, why is it helpful to check 3 points, even though 2 points are enough to identify a line?
- 2) When we choose points on a graph to substitute their coordinates in an equation, what is an advantage of choosing the points where the graph intersects the axes?

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Practice

CLASSWORK

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